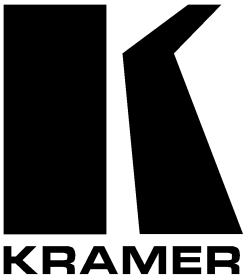
Kramer Electronics, Ltd.



USER MANUAL

Model:

VA-256P

Digital Audio Delay

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1 Introduction

Welcome to Kramer Electronics (since 1981): a world of unique, creative and affordable solutions to the infinite range of problems that confront the video, audio and presentation professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 350-plus different models now appear in 8 Groups[1], which are clearly defined by function.

Congratulations on purchasing your **VA-256P**, which is ideal for professional audio/video broadcasting and production studios.

The package includes the following items:

- **VA-256P** *Digital Audio Delay*
- Power adapter (12V DC Input)
- This user manual[2]

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
- Use Kramer high performance high resolution cables[3]

1 GROUP 1: Distribution Amplifiers; GROUP 2: Video and Audio Switchers, Matrix Switchers and Controllers; GROUP 3: Video, Audio, VGA/XGA Processors; GROUP 4: Interfaces and Sync Processors; GROUP 5: Twisted Pair Interfaces; GROUP 6: Accessories and Rack Adapters; GROUP 7: Scan Converters and Scalers; and GROUP 8: Cables and Connectors

2 Download up-to-date Kramer user manuals from the Internet at this URL: http://www.kramerelectronics.com

3 The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com

3 Overview

The Kramer **VA-256P** is a professional digital audio delay that can be used as an AES-ID3 (75Ω) to AES/EBU (110Ω) converter, as a digital audio switcher, and as an audio delay line.

The high-performance **VA-256P**:

- Lets you adjust for lip sync errors so that the audio delay will match the video delay[1]
- Lets you adjust the brightness of the display via the dimmer setting
- Automatically sets the maximum delay time according to the input sample rate (for each input channel)
- Recalls the previously set display brightness level and input settings[2] via its non-volatile memory after powering up
- Provides a delay time, ranging from 0 up to 4096 msec[3] in increments of 1msec
- Is EIAJ CP1201, IEC-60958, AES3, AES-ID3 and AES/EBU compatible, and supports 32kHz to 96kHz sample frequency range
- Is fully transparent to the digital stream, making it ideal for the most demanding audio applications including home cinema and professional audio applications (such as PCM, Dolby Digital, DTS, AES and so on)
- Is 12VDC fed and is housed in a DigiTOOLS enclosure

To achieve the best performance:

- Connect only good quality connection cables, thus avoiding interference, deterioration in signal quality due to poor matching, and elevated noise-levels (often associated with low quality cables)
- Avoid interference from neighboring electrical appliances and position your Kramer **VA-256P** away from moisture, excessive sunlight and dust

In applications with high interference, shielded cable will give better results.

4 Your VA-256P Digital Audio Delay

Figure 1 and Table 1 define the **VA-256P** *Digital Audio Delay*:

1 An example of a TV broadcasting lip sync error is when the sound is heard before the speaker's lips move

2 Input sampling rate and delay time for each channel

3 Depending on the input sample rate signal (see Table 2)

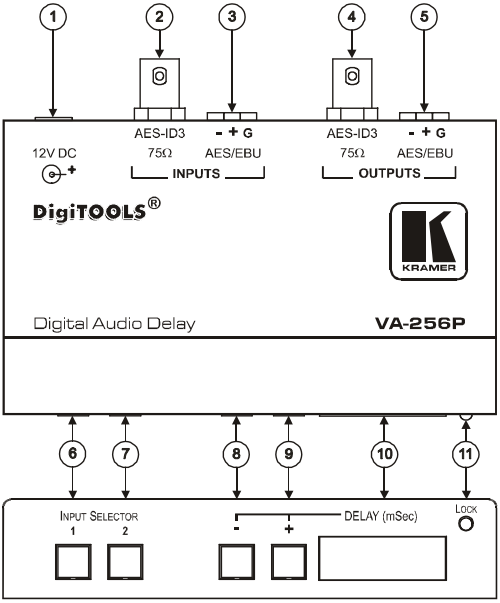

Figure 1: VA-256P Digital Audio Delay

Table 1: Features and Functions of the VA-256P Digital Audio Delay

#	Feature		Function
1	*12V DC*		+12V DC connector for powering the unit
2	*INPUTS*	*AES-ID3 75Ω* BNC Connector	Connect to the digital audio source (75Ω)
3		*AES/EBU* Detachable Terminal Block	Connect to the digital audio source (110Ω)
4	*OUTPUTS*	*AES-ID3 75Ω* BNC Connector	Connect to the digital audio acceptor (75Ω)
5		*AES/EBU* Detachable Terminal Block	Connect to the digital audio acceptor (110Ω)
6	*INPUT SELECTOR 1* Button		Press to select the *AES-ID3* input to route to the outputs
7	*INPUT SELECTOR 2* Button		Press to select the *AES/EBU* input to route to the outputs
8	*DELAY (msec)*	- Button[1]	Press to decrease the delay time[2]
9		+ Button[1]	Press to increase the delay time[2]
10		*DELAY (msec)* 7-segment Display	Displays the delay time[3]
11	*LOCK* LED		Lights when the audio is locked

1 For step-by-step response, press and release these button(s) as required. Press continuously for a quicker response

2 Both the - and + buttons are also used to set the brightness of the display (see section 5.4)

3 Ranging from 0 to 4096 msec in increments of 1msec (see section 5.3)

5 Using the VA-256P Digital Audio Delay

You can use the **VA-256P** as an AES-ID3 to AES/EBU converter, as a digital audio switcher, and as an audio delay line within the same application. In the following examples, the **VA-256P** is used to:

- Switch and convert AES-ID3 to AES/EBU or vice verse (see section 5.1)
- Delay the audio signal in the studio environment (see section 5.2)

5.1 Using the VA-256P to Switch and Convert Signals

To connect the **VA-256P** as the example in Figure 2 illustrates[1], do the following[2]:

1. Connect the sources as follows:
   - Connect a digital audio source (for example, the audio output of a digital video player) to the AES-ID3 75Ω INPUT BNC connector
   - Connect an AES/EBU source (for example, a DAT player) to the AES/EBU detachable terminal block IN connector (using a twisted pair cable)
2. Connect the acceptors as follows:
   - Connect the AES-ID3 75Ω OUTPUT BNC connector to a digital audio acceptor (for example, a studio mixer)
   - Connect the AES/EBU detachable terminal block OUT connector (using a twisted pair cable) to an AES/EBU acceptor (for example, a DAT recorder)
3. Connect the 12V DC power adapter to the power socket and connect the adapter to the mains electricity.
4. Press the INPUT SELECTOR 1 or 2 button to select the input source[3]. The signal routes to both outputs simultaneously.
5. Set the DELAY, as section 5.3 describes.
6. Set the display brightness if required (see section 5.4).

1 You do not have to connect all inputs and outputs, connect only those that are required

2 Switch OFF the power on each device before connecting it to your VA-256P. After connecting your VA-256P, switch on the power on each device

3 If a valid digital audio signal is present on the selected input, the green LOCK LED will light

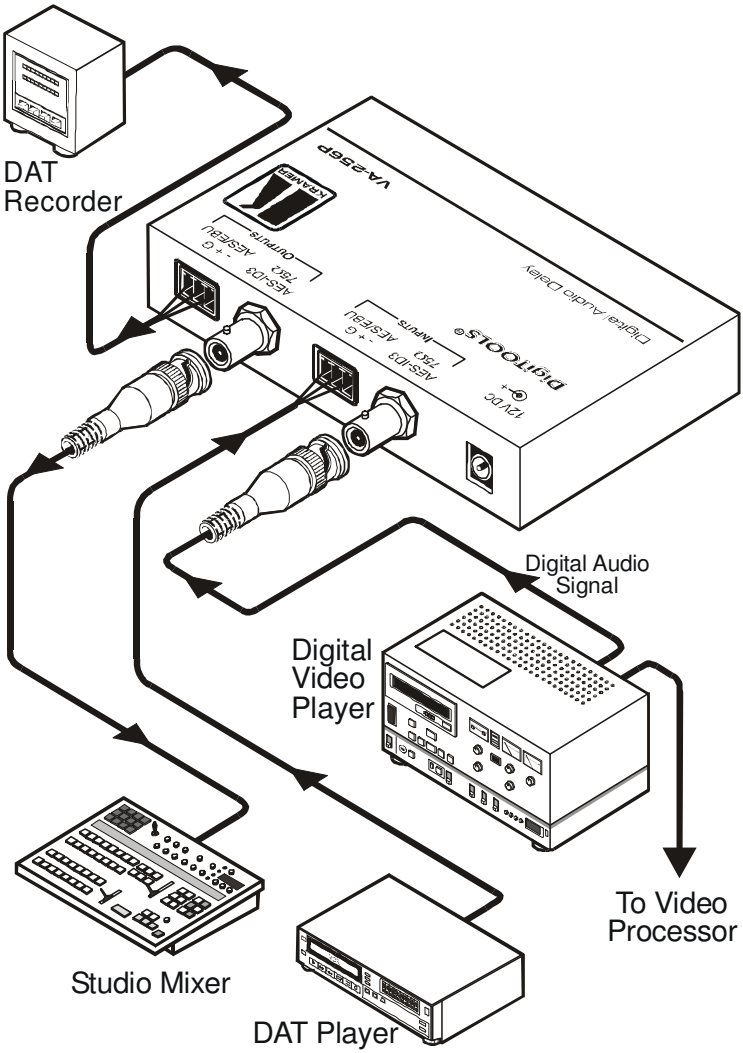

Figure 2: Connecting the VA-256P Digital Audio Delay

5.2 Using the VA-256P as an Audio Delay Line in the Studio Environment

The **VA-256P** compensates for video processing delay time, as illustrated in the example shown in Figure 3. In this example, a digital video player outputs its digital video signal to a video processor (for example, the **SP-11D** *Digital Video Processor*) and its digital audio signal to the **VA-256P**. The DELAY[1] time on the **VA-256P** is set to compensate for the digital video signal processing time. So, while the video signal is processed, the audio signal is delayed, via the **VA-256P**, to maintain synchronization between video and audio as both signals enter the studio mixer.

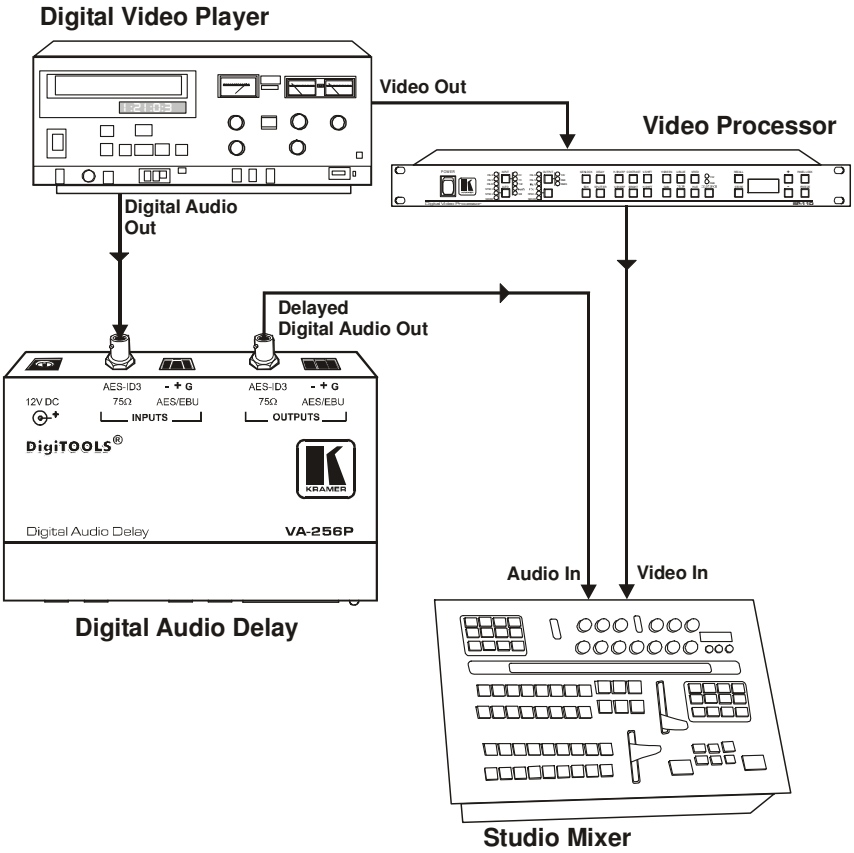

Figure 3: Using the VA-256P Digital Audio Delay in the Studio Environment

1 See section 5.3

5.3 Setting the Delay Time

Set the delay time via the – and + buttons[1] on the front side-panel. The delay time is displayed (in msec) on the 7-segment display located next to these buttons.

The maximum delay time is determined by the input sampling rate, as described in Table 2:

Table 2: Delay Time Settings According to Sampling Rate

Sampling Rate [kHz]	Delay Time Range [msec]
32	0 – 4096
44.1	0 – 2960
48	0 – 2720
96	0 – 1360

The delay time setting (per channel) is saved in the non-volatile memory.

5.4 Setting the Display Brightness (Dimmer Setting) Level

Use the dimmer settings to modify the brightness of the two input buttons and the display.

To set the brightness (dimmer setting) level, do the following:

1. Press both the + and – buttons continuously for 3 seconds.
   The two input buttons and the + and – buttons illuminate.
   The 7-segment display shows the brightness level[2].
2. Press the + or – button to increase or decrease the brightness level.
   The brightness of the four buttons and the display is adjusted accordingly.
3. After setting the brightness, exit the dimmer setting by either:
   - Pressing one of the two input buttons. This input is then selected and the unit returns to normal operation; **OR by**
   - Waiting 20 seconds
     The unit returns to normal operation

The dimmer setting is saved in the non-volatile memory.

1 In 1msec steps

2 Ranging from 1 to 100

6 Technical Specifications

Table 3 includes the technical specifications:

Table 3: Technical Specifications[1] of the VA-256P Digital Audio Delay

INPUTS:	1 digital audio AES-ID3, 75Ω on a BNC connector, 1 digital audio AES/EBU 110Ω on a detachable terminal block
OUTPUTS:	1 digital audio AES-ID3 on a BNC connector, 1 digital audio AES/EBU on a detachable terminal block
SAMPLE RATE:	32, 44.1, 48, 96, 192 kHz sampling frequencies
AUDIO SIGNAL COMPATIBILITY:	Digital Audio (S/PDIF): All current broadcast/DVD standards, including Dolby Digital, EX, DTS, ES and PCM Audio sample rates of 32kHz, 44.1kHz, 48kHz (standard DVD) and 96kHz (DTS 96/24)
AUDIO DELAY CAPABILITIES:	0-4096ms for 32kHz sample rate signals 0-2960ms for 44.1kHz sample rate signals 0-2720ms for 48kHz sample rate signals 0-1360ms for 96kHz sample rate signals 2 user programmable presets (1 per input)
POWER SOURCE:	12V DC, 300mA
DIMENSIONS:	12 cm x 7.5 cm x 2.5 cm (4.7" x 2.95" 0.98", W, D, H)
WEIGHT:	0.3 kg (0.67 lbs.) approx.
ACCESSORIES:	Power adapter, mounting bracket
OPTIONS:	19” rack adapters: RK-T1, RK-T3

1 Specifications are subject to change without notice

LIMITED WARRANTY

Kramer Electronics (hereafter Kramer) warrants this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by Kramer, or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the Web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed.
3. Damage, deterioration or malfunction resulting from:
   - i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
   - ii) Product modification, or failure to follow instructions supplied with the product
   - iii) Repair or attempted repair by anyone not authorized by Kramer
   - iv) Any shipment of the product (claims must be presented to the carrier)
   - v) Removal or installation of the product
   - vi) Any other cause, which does not relate to a product defect
   - vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.
NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.
This equipment has been tested to determine compliance with the requirements of:

EN-50081:	"Electromagnetic compatibility (EMC); generic emission standard. Part 1: Residential, commercial and light industry"
EN-50082:	"Electromagnetic compatibility (EMC) generic immunity standard. Part 1: Residential, commercial and light industry environment".
CFR-47:	FCC Rules and Regulations: Part 15: "Radio frequency devices Subpart B – Unintentional radiators"

CAUTION!

- Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
- Use the supplied DC power supply to feed power to the machine.
- Please use recommended interconnection cables to connect the machine to other components.

For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found.
We welcome your questions, comments and feedback.

Safety Warning:
Disconnect the unit from the power supply before opening/servicing.

Kramer Electronics, Ltd.
Web site: www.kramerelectronics.com
E-mail: info@kramerel.com
P/N: 2900-000102 REV 1